## Renewable Energy and a Smart Grid



Advanced sensors and controls with accurate system models make the grid more reliable, predictable, and efficient.

Better information and grid integration make for more market opportunities beyond renewable credits and individual benefits.

With a Smart Grid, variable large scale wind and solar resources become more manageable, and more desirable. Bulk Generation

Transmission --- Distribution

Customer

A smart meter + solar or wind + efficiency = a smart home, which is a better partner for load shedding service providers, dynamic electricity rates, and renewable energy tracking in our 21<sup>st</sup> century grid.

Smart Grid transmission technology like phasor sensors and energy storage can accommodate greater use of large and small scale wind and solar.

Secure Communication Flows

Electrical Flows

Domain

Smart Grid distribution technology can handle more renewables per circuit, and per substation.

NIST Smart Grid Framework

Smart meters and inverters connect customers' energy AND information with the grid, making both stronger and more flexible.